Agriculture and Life Sciences at Cornell

Cornell University Announcements

New York State College of Agriculture and Life Sciences,
a statutory college of the State University,
Cornell University, Ithaca, New York.

Front cover: Bradfield Hall overlooks Lua A. Minns Garden in the College of Agriculture and Life Sciences area of the Cornell campus.

Cornell University

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Volume 66 of the Cornell University Announcements consists of twenty-two catalogs, of which this is number 2, dated January 15, 1974. Publication dates: twenty-two times a year (four times in August; three times in January and March; twice in June, July, September, and November; once in April, May, October, and December). Publisher: Cornell University, Sheldon Court, 420 College Avenue, Ithaca, New York 14850. Second-class postage paid at Ithaca, New York.

1974–75

Cornell Academic Calendar

Registration, new students	Thursday, August 29
Registration, continuing and rejoining students	Friday, August 30
Fall term instruction begins	Monday, September 2
Thanksgiving recess:	
Instruction suspended, 1:10 p.m.	Wednesday, November 27
Instruction resumed, 7:30 a.m.	Monday, December 2
Fall term instruction ends, 1:10 p.m.	Saturday, December 7
Final examinations begin	Friday, December 13
Final examinations end	Saturday, December 21
Registration, new and rejoining students	Thursday, January 23
Registration, continuing students	Friday, January 24
Spring term instruction begins, 7:30 a.m.	Monday, January 27
Spring recess:	
Instruction suspended, 1:10 p.m.	Saturday, March 22
Instruction resumed, 7:30 a.m.	Monday, March 31
Spring term instruction ends, 1:10 p.m.	Saturday, May 10
Final examinations begin	Monday, May 19
Final examinations end	Wednesday, May 28
Commencement Day	Monday, June 2

In enacting this calendar, the University Senate has scheduled classes on religious holidays. It is the intent of Senate legislation that students missing classes due to the observance of religious holidays be given ample opportunity to make up work.

The dates shown in the Academic Calendar are subject to change at any time by official action of Cornell University.

Summer Sessions Calendar 1974

Registration, three-week summer session, three-week summer session instruction begins	Wednesday, June 5
Registration, eight-week summer session, eight-week summer session instruction begins	Monday, June 17
Three-week summer session final examinations, three-week summer session ends	Tuesday, June 25
Registration, six-week summer session, six-week summer session instruction begins	Wednesday, June 26
Six- and eight-week summer sessions final examinations begin	Thursday, August 8
Six- and eight-week summer sessions end	Friday, August 9

Contents

Mann Library, with more than 400,000 volumes, is the second-largest agricultural library in the world.

Foreword

The purpose of this *Announcement, Agriculture and Life Sciences at Cornell,* is to provide prospective students with an overall view of the objectives and programs of the College and to answer most of the questions likely to be raised.

Students should consult the *General Information Announcement* of Cornell University for more information about the University and student life at Cornell, such as housing, dining, health services, and extracurricular activities.

Additional information may be obtained by writing to the Office of Resident Instruction, 193 Roberts Hall, or to the appropriate office indicated in this publication, Cornell University, Ithaca, New York 14850. The form at the back of this *Announcement* can be used to request application packets, the catalog of course descriptions, brochures on the various programs of study, and other information.

Information about Cornell University and the College of Agriculture and Life Sciences

Cornell University

—Coeducational
—11,300 undergraduates and 6,000 graduate students
—15 schools and colleges
—Library: more than 4 million volumes
—Campus size: 740 acres
—University Senate: 60 faculty; 60 students; 20 other
—Motor vehicles: permitted; parking and driving on campus restricted
—Campus housing: not required; accommodations for 5,400 students; 420 married-student apartments
—Dining: several areas; no formal requirements; Co-op and Risley programs available
—Health services: provided on campus; students' and spouses' insurance available
—Credit purchases: Cornellcard available
—Campus Code of Conduct: applies to students, faculty, and staff

College of Agriculture and Life Sciences

—2,800 undergraduate students—2,000 men, 800 women
—900 graduate students
—2,700 freshman applications received
—Secondary School units: 16 required, 18 recommended
—SAT or ACT scores required
—Early Decision Plan available
—Delayed enrollment permitted
—Freshman Class:
—550—350 men, 200 women
—Average SAT score: verbal, 600; math, 650
—Average high school grade: 89
—Average regents grade: 88
—Percent in upper two-fifths of class: 95
—1,000 Transfer applications received
—385 Transfer students matriculated
—Average grade in previous college: 3.1
—9 major undergraduate program areas; over 50 specializations
—ROTC available
—120 credits required to graduate
—4 semesters of physical education required
—Approximate yearly cost: New York State resident, $3,550; nonresident, $4,150
—About 40 percent of the freshman class receive financial aid—$400,000 in scholarships, $150,000 in loans, and $22,000 in part-time jobs
—About 28 percent of the freshman class receive scholarships from Cornell amounting to $163,000
—500 faculty members
— 92 percent of faculty have earned doctorate degrees

Information for Applicants

To apply for Admission and Financial Aid	Return form at the back of this *Announcement* or write: Office of Admissions 247 Day Hall Cornell University Ithaca, New York 14850.
Announcements to consult	*General Information; Cornell University, Agriculture and Life Sciences at Cornell* Write: Cornell University Announcements Day Hall Cornell University Ithaca, New York 14850.
Freshman Admission	Applications are received until *January 15*. Applicants are notified from *February 1* to *April 15*.
Transfer Admission	Applications are received until *March 15* for fall semester, and until *November 1* for spring semester. Applicants are notified by *June 15* and *January 15*.
Early Decision	Applications are received until *November 1*. Applicants will be notified by *December 15*.
Financial Aid	Application for financial aid should be made on forms provided in the application packet and returned with the application for admission.
Interviews	Are encouraged but not required. Write: Appointments Secretary, 195 Roberts Hall, Cornell University, Ithaca, New York 14850; or call: 607/256-2036.
For an answer to any question	Write: Director of Admissions, College of Agriculture and Life Sciences, 195 Roberts Hall, Cornell University, Ithaca, New York 14850; or call: 607/256-2036.

College of Agriculture and Life Sciences
Outline of the Nine Program Areas

AGRICULTURAL AND
BIOLOGICAL ENGINEERING

- Agricultural Engineering
- Agricultural Engineering Technology
- Agricultural Technology
- Mechanization Teaching

ANIMAL SCIENCES

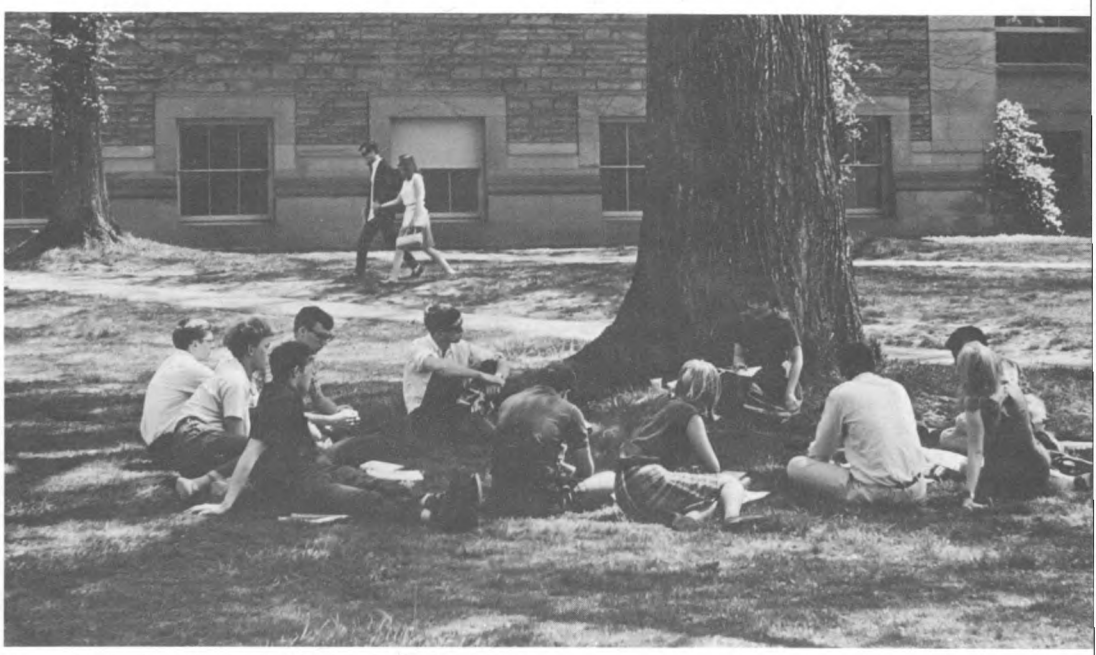
- Animal Nutrition
- Animal Breeding and Genetics
- Animal Physiology
- Meat Science
- Dairy Cattle Production
- Livestock Production
- Poultry Production
- Horse Production

APPLIED ECONOMICS AND
BUSINESS MANAGEMENT

- Agricultural Economics
- Business Management and Marketing
- Farm Business Management and Finance
- Food Industry Management
- Public Affairs Management
- Resource Economics

BEHAVIORAL
AND SOCIAL SCIENCES

- Agricultural Education
- Communication Arts
- Education
- Environmental Education
- Human Services
- Rural Sociology



An outdoor class in front of Goldwin Smith Hall, principal building of the College of Arts and Sciences.

BIOLOGICAL SCIENCES

- Animal Physiology and Anatomy
- Biochemistry
- Botany
- Ecology and Evolution
- Genetics and Development
- Neurobiology and Behavior

ENVIRONMENTAL STUDIES

- Aquatic Science
- Atmospheric Science
- Entomology
- Environmental Conservation
- Environmental Technology
- Fishery Science
- Landscape Architecture
- Outdoor Recreation
- Soil Science
- Wildlife Science

FOOD SCIENCE

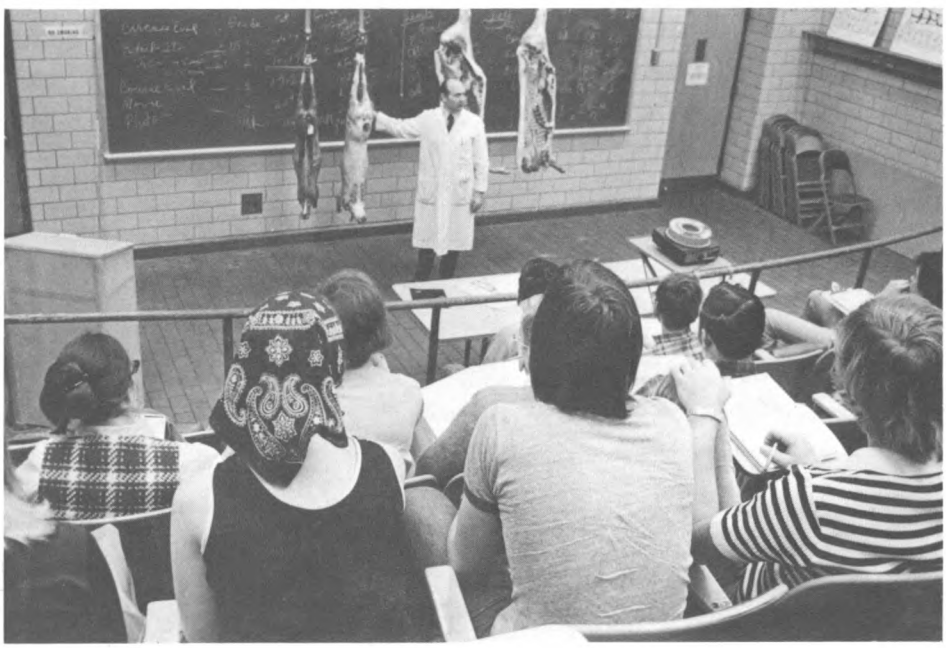
- General
- Food Analysis
- Food Technology and Management

PLANT SCIENCES

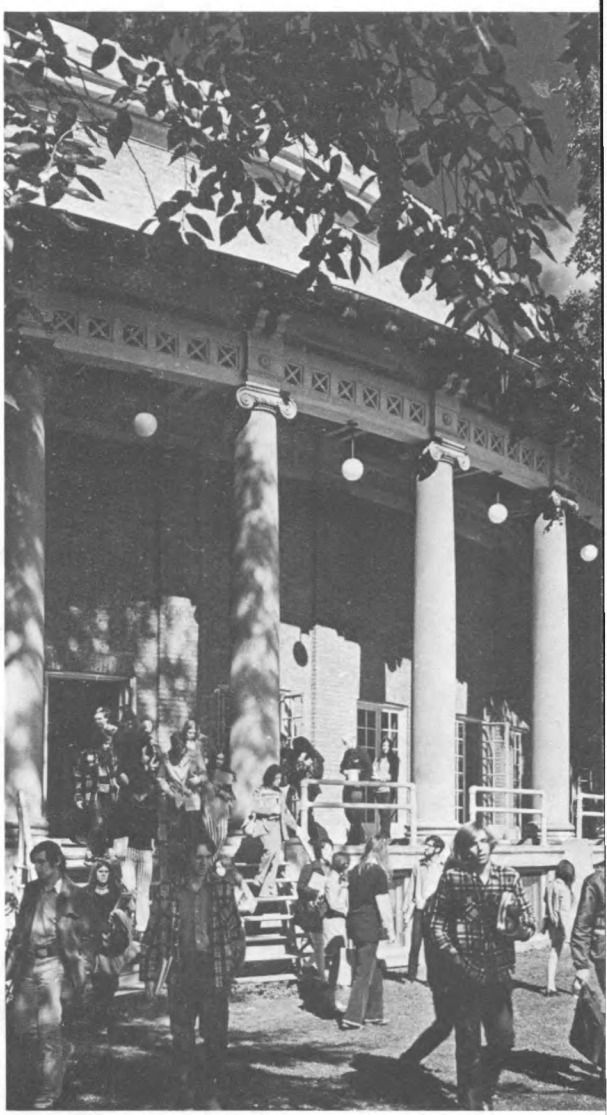
- General
- Field crops
- Floriculture and Ornamental Horticulture
- Plant Breeding
- Plant Pathology
- Plant Protection
- Pomology
- Vegetable Crops

GENERAL AND SPECIAL PROGRAMS

- General Studies
- International Agriculture
- Microbiology
- Statistics and Biometry



Demonstrations serve as an aid to learning in many courses.



Concerts and lectures by distinguished visitors are held in Bailey Hall, which seats more than two thousand persons.

Few problems have a higher priority than providing an adequate supply of the proper food at reasonable prices to the people of the world while at the same time conserving and improving natural and human resources. Students in the College of Agriculture and Life Sciences have an opportunity to select from a variety of programs that will prepare them to contribute either directly or indirectly to the solution of these important problems.

Many interesting and challenging careers exist for graduates with a Bachelor's degree. Others require further study in graduate and professional schools.

The College of Agriculture and Life Sciences is a part of two great university systems—the State University of New York and Cornell University. As a statutory college of the State University of New York, it is tax supported, and, as such, has a special mission to serve the people of New York State. The College is located at and administered by Cornell University. Graduates receive their degrees from Cornell as do those of the other fourteen colleges and schools of the University.

With approximately 2,800 undergraduate and 900 graduate students, the College offers the friendly environment found at most small colleges. At the same time, students in the College are members of the larger Cornell community and are able to participate in the numerous activities that can be offered only by a large university. Students in the College may take courses in any of the undergraduate schools and colleges at Cornell. This opens up a virtually unlimited selection of courses from which to choose, contributing breadth and perspective to strong, specialized programs of study. Students in the College usually take about 50 percent of their courses in other divisions of the University. One of the unique and highly beneficial aspects of the instructional program is that most faculty members also have responsibilities in research or extension. Students benefit because professors are able to add a current and relevant dimension to their teaching.

A Mission-Oriented College

The mission of the College is, "To increase man's understanding of agricultural production, marketing, life sciences and the environment; to educate citizens for careers and leadership in these areas; and to translate new knowledge into action for the benefit of mankind".

The College attempts to carry out its mission by:

1. Offering a variety of programs leading to a Bachelor of Science degree;
2. Serving as a major center for graduate study in the basic and applied sciences related to agriculture, the life sciences, and the environment;
3. Conducting both basic and applied research;
4. Offering extension programs throughout the State in partnership with County Cooperative Extension Associations.

In recognition of the broadened mission of the College, its name was changed by legislative action in 1971 from the New York State College of Agriculture to the New York State College of Agriculture and Life Sciences.

As a statutory college of the State University of New York with close administrative, cultural, and physical ties with Cornell University, the College draws strength from each in its application of the land-grant philosophy. These resources are combined in a working relationship with the people,

with state, federal, and local governments, foundations, educational, agricultural, and business organizations, civic groups, and others to execute its mission.

Land-Grant Beginning

The genesis of the present-day New York State College of Agriculture and Life Sciences goes back to the Land-Grant College Act passed by Congress in 1862. This act donated 11 million acres of public lands to the states and territories to provide for "the endowment, support, and maintenance of at least one college (in each state) where the leading object shall be . . . to teach such branches of learning as are related to agriculture and the mechanic arts . . ."

These colleges were founded out of protest against the limited opportunities in classical colleges. The land-grant philosophy, as it developed over the years, emphasized student opportunity according to ability and without regard to financial means, a close interweaving of academic matters and real life, a social consciousness leading to educational service in behalf of all people, and a meaningful relationship between resident instruction, research, and extension.

Cornell received the land grant for New York State and became at one and the same time a private institution, and a land-grant college. The Federal Land-Grant Act was followed by the Hatch Act of 1887 authorizing an agricultural experiment station in each state and territory, and the Smith-Lever Act of 1914 establishing the Cooperative Extension Service.

For the first forty years, the College of Agriculture was supported within the endowed university, but in 1904, through legislative action, the State of New York assumed responsibility for its financial support. Program and administrative direction of the College remained with Cornell.

The legislative act establishing the New York State College of Agriculture contained provisions for the continuation of the trilogy of resident instruction, research, and extension which had been the basic program areas since the early days of the University. Agricultural extension in the form of lectures by professors to groups of farmers throughout the State began in 1869. The Cornell University Agricultural Experiment Station at Ithaca, which had been in operation since 1888, was an integral part of the College. The New York State Agricultural Experiment Station at Geneva, created as an independent research unit by the legislature in 1880, came under the administration of the College in 1923.

Present Organization

Since 1948, the College has been a statutory College of the State University of New York (now the largest system of higher education in the nation), with both SUNY and Cornell coordinating the responsibilities for its welfare.

The Dean, as the chief administrative officer of the College, is appointed by the Cornell University Board of Trustees, on recommendation of the President, and on approval of the Board of Trustees of the State University of New York.

Within the College, various major program areas are served by an appropriate director. The dean, associate dean, directors, and associate directors make up the College administrative team. The major administrative units in terms of subject matter programs are the departments. In practice, the Department chairmen work closely with the directors and the dean in relation to their program needs in resident

instruction, research, extension, and international agriculture, and serve in an advisory capacity on overall College policy.

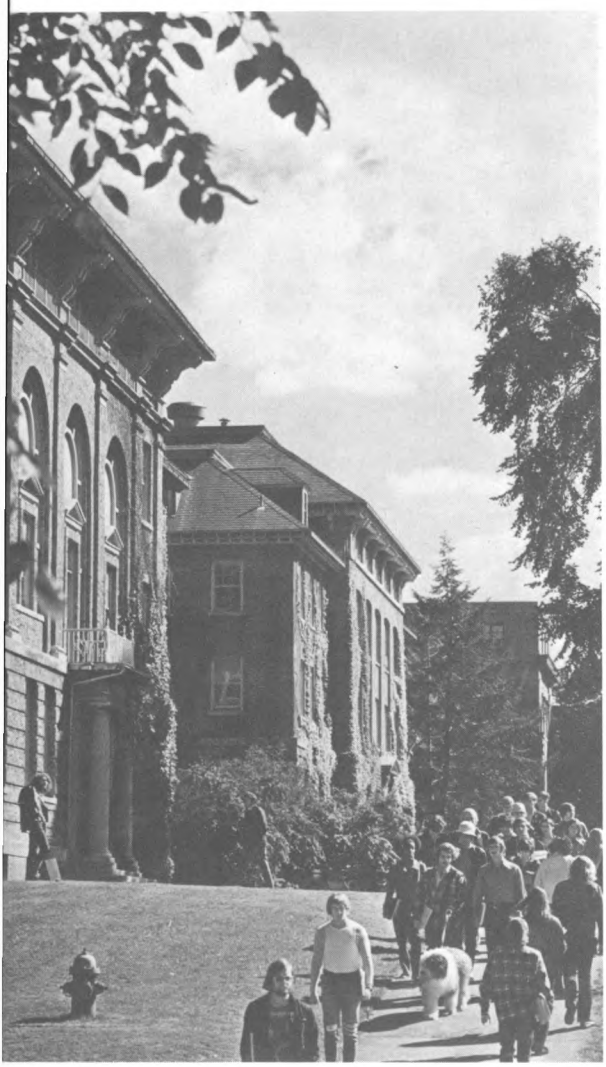
The departments located at Ithaca are: Agricultural Economics, Agricultural Engineering, Agronomy, Animal Science, Bailey Hortorium, Communication Arts, Education, Entomology, Floriculture and Ornamental Horticulture, Food Science, Mann Library, Natural Resources, Plant Breeding and Biometry, Plant Pathology, Pomology, Poultry Science, Rural Sociology, and Vegetable Crops.

The Departments located at Geneva are: Entomology, Food Science and Technology, Plant Pathology, Pomology and Viticulture, Publications and Library, Seed Investigations, and Vegetable Crops.

The Division of Biological Sciences, administered jointly by the College of Agriculture and Life Sciences and the College of Arts and Sciences has the following sections: Biochemistry, Molecular and Cell Biology, Ecology and Systematics, Genetics, Development and Physiology, Neurobiology and Behavior, and Weigand Herbarium.

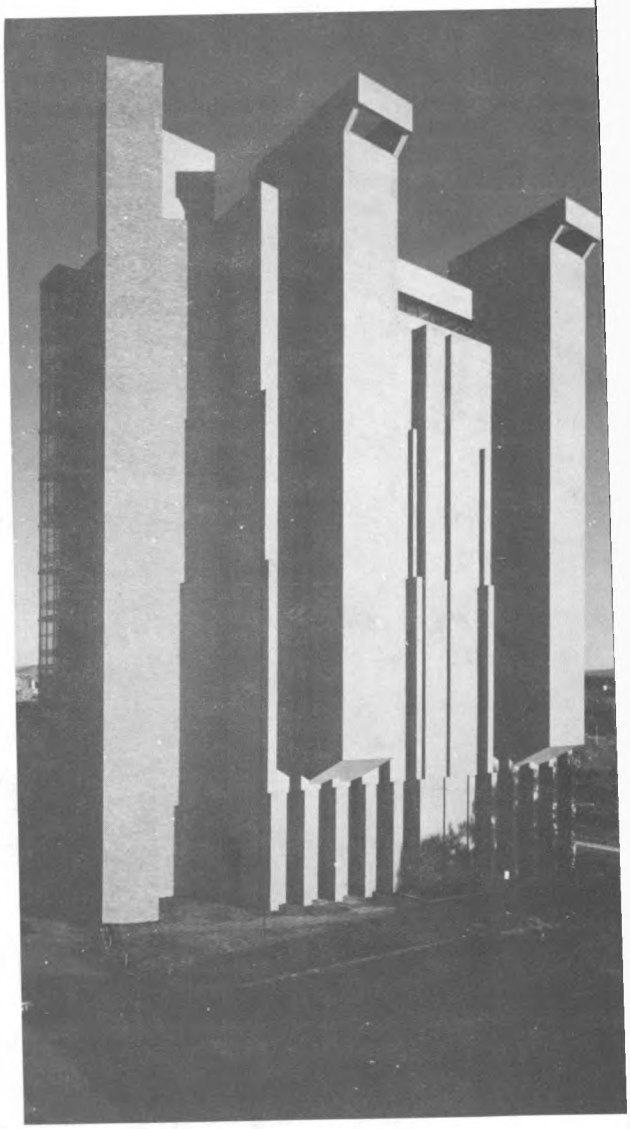
The total number of full-time equivalent employees is slightly more than 1,800. Jointly with the New York State College of Human Ecology, the College is the headquarters for Cooperative Extension which conducts organized programs on a local level in fifty-six counties and several urban centers.

An advisory Council of thirty-six members has been set up for the College and its two agricultural experiment stations. Its members come from higher education, state government, mass media, private foundations, medicine, biology, farming, food industry, labor relations, and agricultural science and technology. These men and women serve in an advisory capacity and contribute substantially to the institution's progress.



At Cornell, the "Ag Quad" is one of three major campus quadrangles. The others are the Arts Quad and the Engineering Quad.

New Directions



Bradfield Hall, the tallest building on campus, is also one of the newest. In it are laboratories for soil testing, microclimatology investigations, and work in the atmospheric sciences.

A fundamental responsibility will continue to be the development of strong teaching, research, and extension programs in food production, processing, and marketing, and the basic sciences. The institution, however, is becoming more deeply involved with environmental and social problems in the classrooms and laboratories and in both rural and urban sectors of the State. Thus, there is some shifting of resources from more traditional education and research programs to these new areas.

Never before have the citizens of the State felt so keenly about the need for improving, maintaining, and protecting the environment in which they live. The College and modern agriculture have a direct concern in the physical, biological, and social factors rapidly emerging on the scene. Not only is the College continuing to expand its study of ways to protect the environment from damage due to agricultural practices, but it is emphasizing the various means to enhance the quality of the environment through the development of more adaptable trees, flowers, and grass suitable for residential and commercial areas and highway rights-of-way. Furthermore, the College's land-use programs will continue to assist State commissions and agencies to identify and integrate natural resources needed not only for the future of agriculture but for use in providing the needs of society for open space, for greenbelts in community planning, and for outdoor recreation opportunities.

Rural development is also a major concern and principal components are the uses of natural and human resources. Work is going on to identify basic processes associated with sound community and regional development strategies. Involved are such matters as a sound balance between rural and urban New York; the relationship of agriculture and rural communities to the needs of metropolitan centers for rural-located resources to supply expanding demands for water, power, waste disposal facilities, and land for urban expansion and recreation; local leadership development; and improvement of the economic and social well-being of rural people.

Here are three examples of steps taken to support the new directions of the College.

1. Establishment in 1972 of an Environmental Studies Program and the appointment of a Director from the faculty in a move to strengthen activities related to environmental quality.
2. Participation in the new Sea Grant program to aid in developing and conserving the resources of 2,400 miles of coastline along the Atlantic, Lake Erie, and Lake Ontario. It is a cooperative effort with SUNY, Cornell, State and industrial leaders in partnership with the Federal government.
3. Creation of the Northeast Regional Center for Rural Development in 1972 at the College's Experiment Station at Ithaca upon the recommendation of experiment directors in the twelve-state region. Its primary concerns are research and the training of persons engaged in or preparing for work in rural development.

Intimate concern for and involvement with production efficiency, agribusiness activity, the environment, rural development, education, and human well-being implies a complex mission for the College. Even so, this mission is clearly defined and programs are channeled along specific routes that produce tangible results in terms of increased knowledge and practical solutions to problems.

Career Planning

Selecting a career is a difficult task for most students. Some students postpone this decision until after receiving their bachelor's degrees by continuing their studies in a graduate or professional school. Some select careers that require graduate study. About two-thirds of the students in the College, however, seek employment at the completion of their bachelor's program.

Help in choosing career objectives and a program of study to achieve those objectives is available from several sources.

Faculty Advisers

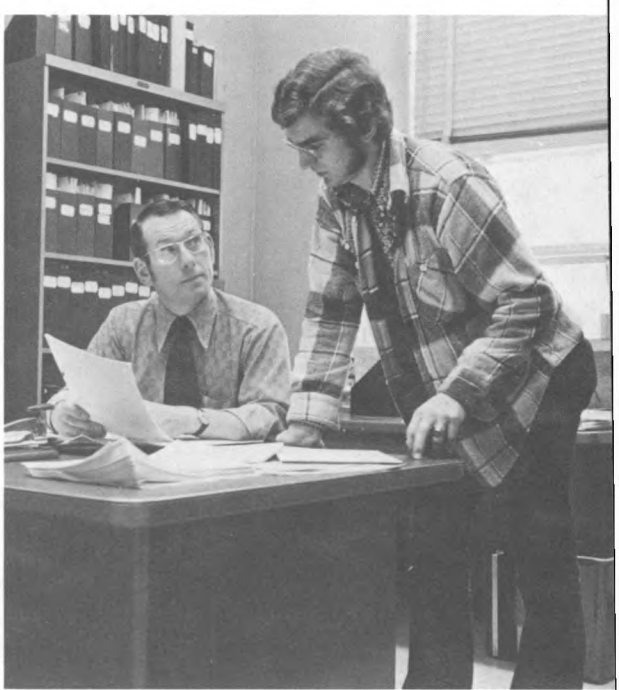
Faculty members recognize that students need information and advice to make intelligent decisions while they are in college. They believe that personal contact on a one-to-one basis is an important way to identify individual differences and needs. Moreover, they believe that they can and should be an important source of information and advice on both academic and personal matters.

After a student has been accepted in a program area, a professor from that area is selected to be his or her adviser. The adviser will help identify career objectives, assess strengths and weaknesses, and select a program of courses that will most nearly meet the student's objectives. When students graduate, advisers help them select and apply for admission to graduate or professional schools; or, in cooperation with the College placement coordinator, help them find a position in their area of interest and training.

Career Development Program

In addition to the counseling and advising available from faculty advisers, the College coordinates a multiphase career development program through the Office of Student and Alumni Services.

1. Career Library. The library contains current information on career planning and career opportunities.
2. Career Counseling. Individual and group conferences are conducted on career planning, job



Each student has a faculty adviser, assigned to help with planning courses and to answer questions that may arise.

opportunities, resumé preparation, and employment seeking strategies.

3. Work experience. Included are: Cooperative Career Development Program, Summer Intern Program, and Summer Job Placement.
4. Career Placement. Services include on campus interviews and an employer-employee referral system with selected employers who are particularly interested in graduates of the College.

University Career Center

The Career Center maintains an extensive library containing information about numerous graduate schools and employment opportunities. The library, as well as counseling, conferences, and workshops, is available to students from all colleges in the University.

Alumni Services

All of the above services are available to alumni throughout their careers.

Student-teacher meetings are part of the effort to provide the answers to questions when they are needed.

Selecting a Program of Study

When students apply for admission, they are asked to select one of nine program areas. Careful study prior to the choice is advisable for the following two reasons. First, each application is considered in competition with other applications in the program area; second, the requirements in each program area are different and a change may lengthen the time required to graduate.

It is possible to change program areas if a student's objectives change. Every effort is made to facilitate the change if there is room in the new area and if the student has the prerequisites that the faculty in the area believe are necessary to complete the program satisfactorily. Students may change advisers at any time for any reason. Most, however, remain with their original adviser unless their career interests change.

When students begin study in a program area, they select courses to meet the distribution requirements as well as courses from the suggested core and other courses approved by their adviser. Freshmen usually take introductory courses during their first year in the following areas:

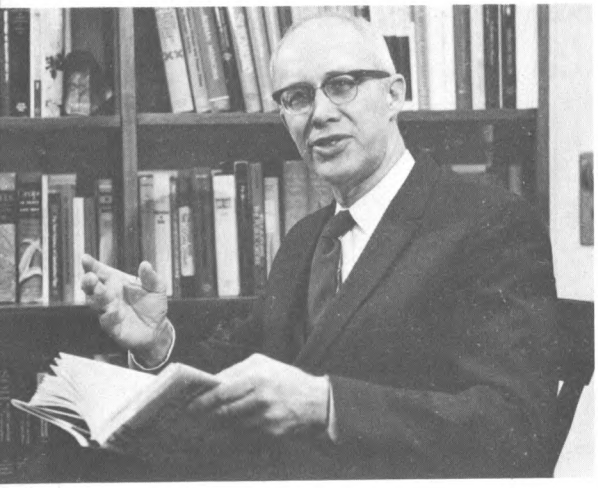
	Credit Hours
Freshman Seminars	6
Biological Science	6–8
Physical Science	6–8
Core Courses in Program Area	3–6
Elective Courses	3–6
Physical Education	0

Specific courses selected depend on each student's interests, previous level of training, and the program area to which he has been admitted. The two Freshman Seminars can be selected from over thirty designed especially for freshmen. The specific courses in chemistry, physics, and biological sciences depend on whether or not students will wish or be required to take additional courses in those subjects.

After about two years, most students reach a pivotal point in their studies. If they decide they are going to continue their studies in a graduate or professional school, their advisers will help them select courses that will prepare them for advanced study. If they decide, however, that they want to be prepared for a meaningful career at the completion of their Bachelor's degree, they may select a general program in their program area, or they may concentrate their studies in one of the specializations.

For example, students in the Plant Science area may select courses that will prepare them for general employment in any field of plant science, or they may choose one of the specializations, such as Floriculture and Ornamental Horticulture, to prepare them specifically for a career in that field.

Program Areas



The more than fifty undergraduate programs and specializations offered in the College are grouped into nine broad program areas. Each program area is described briefly on the following pages. Included is information about the scope and importance of the area, the kinds of programs or specializations offered, the kinds of courses required and the kinds of career opportunities available to graduates.

W. Keith Kennedy,
dean of the College of Agriculture and Life Sciences.

For more information about any of the program areas or a catalog of course descriptions, please return the form in the back of this Announcement.

Agricultural and Biological Engineering

Mechanical grape harvester in operation in a New York State vineyard.

Agricultural and Biological Engineering serves humanity by solving engineering problems in agriculture and associated life processes. By applying engineering and understanding biological processes, engineers, technologists, and technicians trained in this broad discipline, contribute to the production of food, fiber, environmental comfort, and well-being. Agricultural and Biological Engineering is a unique combination of the physical and biological worlds. Engineers apply physical and biological knowledge to the solution of technical problems of importance to our everyday existence.

Scope of Subject Matter

The nature of Agricultural and Biological Engineering can best be illustrated by examples. Approximately 50 percent of the people employed in this profession are involved in the mechanization and automation of agricultural equipment and processes.

Many people are involved in the processing and packaging of food and agricultural products. Engineering and technical problems constantly arise that must be solved by an understanding of both the physical and biological processes. Those with managerial responsibilities in this area must also be aware of the economic and social aspects of the problems.

Environmental control for humans, animals, and plant products demands an application of a knowledge of life processes and physical analysis. Providing the appropriate temperature, atmosphere and illumination for optimum production and storage requires a careful balance of numerous physical and biological factors.

Maintaining our natural resources involves the proper use of soil, water, and atmosphere. For example, the physical aspects of soil erosion must be supplemented by the impact of the soil loss on plant and animal ecology.

Disposal of the waste products of food and fiber production and rural living requires an understanding of the chemical, biological, social, economic, and physical factors involved in waste management and disposal.

A systems approach is frequently needed to handle the many facets of biological and agricultural engineering problems. Systems engineering combined with an understanding of underlying biological and engineering aspects often leads to valuable and practical solutions.

Curriculum, Faculty, and Facilities

Students in this program area have the opportunity to study in three different specializations: Agricultural Engineering, Agricultural Engineering Technology, and Agricultural Technology. Preparation for Mechanization Teaching is an option within any of these three specializations.

The Agricultural Engineering specialization is a joint program with the College of Engineering. For three years students are enrolled in the College of Agriculture and Life Sciences but pay some additional tuition costs for endowed college courses. In the fourth year, students enroll and pay tuition in the College of Engineering and receive a Bachelor of Science degree from that College. Each student, with his adviser, develops a program of courses suited to his needs, interests, and capabilities. Many graduates of this program continue for a fifth year to obtain a Master of Engineering (Agricultural).

The specializations of Agricultural Engineering Technology and Agricultural Technology require specific courses in Agricultural Engineering and physical and mathematical sciences beyond the College requirements. Students receive a Bachelor of Science degree from the College of Agriculture and Life Sciences.

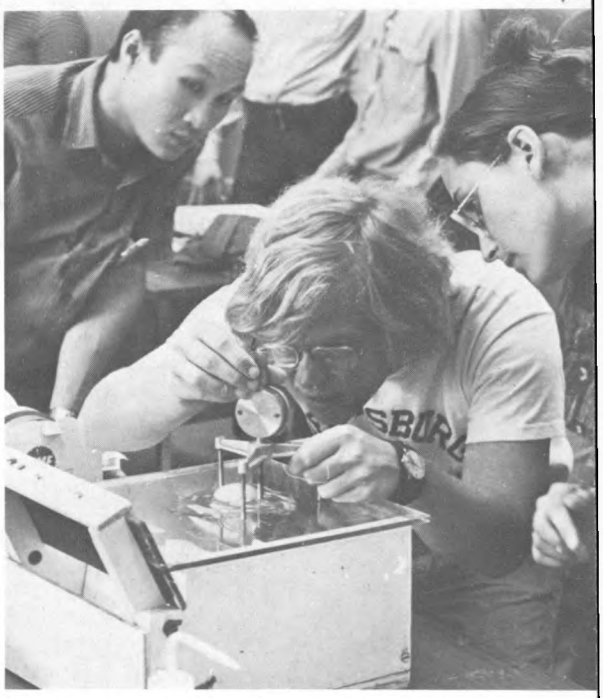
Capability and interest in the physical, mathematical, and engineering sciences is required to different degrees in each of the specializations. The Agricultural Engineering specialization (Engineering degree) requires completion of more than forty-two semester hours of studies in these areas. With specialization in Agricultural Engineering Technology and Agricultural Technology, lesser involvement with the above sciences is required. There is ample opportunity to incorporate economics, social sciences, and other academic pursuits in all of the specializations. Each student's curriculum is tailored to his interests within the requirements for each specialization. Close cooperation and consultation with the faculty adviser is maintained throughout the course of study.

The area of Agricultural and Biological Engineering includes about twenty-five faculty members of whom approximately fifteen are actively engaged in the instructional program. Riley-Robb Hall houses one of the most complete facilities for Agricultural and Biological Engineering instruction in the United States. A recently developed Learning Center provides audiovisual-tutorial instruction for self-paced learning.

Employment Opportunities

Graduates from the specializations in this area are engaged in jobs diverse in both subject area and responsibility. Each graduate can select from several opportunities for employment each year. Many are employed as design engineers in the agricultural equipment, structures, and food processing industries. Some are involved in academic research and teaching or extension education. Service and supply industries for food production and processing employ graduates for technical advisers, service, sales, and managerial positions.

Animal Sciences



Intense concentration plays an important role in this laboratory exercise in Introductory Poultry Science.

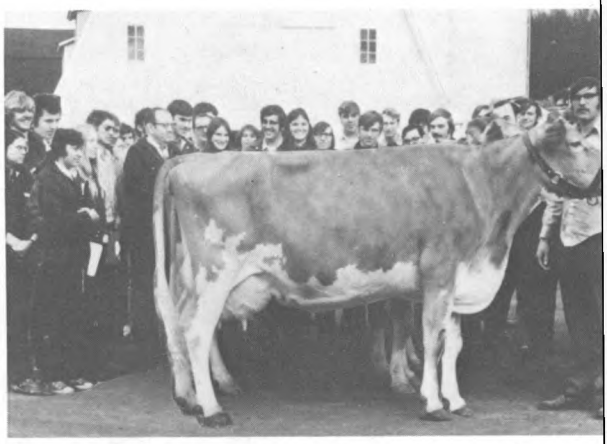
Animals contribute substantially to the high quality diet enjoyed by most Americans. The basic goal of the animal sciences is the generation of new knowledge in the basic biology of animals and the application of this knowledge to animal production to meet man's increasing demand for milk, eggs, steaks, chops, and broilers.

Students who are well trained in the animal sciences are needed in all phases of the animal industry. At Cornell, a broad spectrum of courses is available in the animal sciences to prepare students for career interests ranging from livestock management to preparation for graduate or veterinary school.

Students, in consultation with their advisers, select courses and develop a program to best meet their needs, interests, and objectives. Specific courses are offered in:

Animal Nutrition
Animal Breeding and Genetics
Animal Physiology
Meat Science
Dairy Cattle Production
Livestock Production
Poultry Production
Horse Production

Students who select a science-oriented program may prepare themselves for entrance into a veterinary college or for graduate studies in anticipation of a research or teaching career. Students in this category would emphasize courses in chemistry, physics, biochemistry, microbiology, and mathematics in addition to the courses offered in the Animal Science Program Area. Some may develop a very practical program designed to prepare them for farming, livestock production, or overseas work such as the Peace Corps. These students would schedule a broad production-oriented program taking courses in Agronomy, Farm Management, Agricultural Engineering, etc., in addition to those in Dairy, Sheep,



Learning how to recognize quality in dairy cattle is the subject of this outdoor class.

Poultry, Beef or Swine Production.

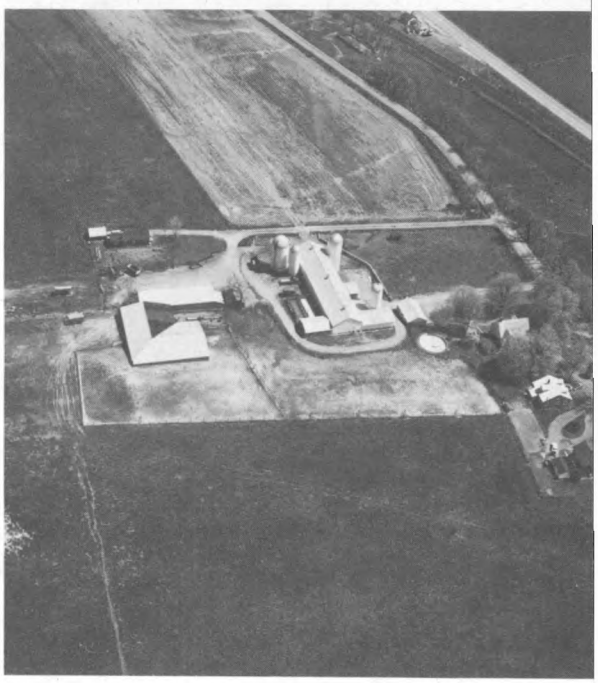
Many students select an intermediate type curriculum and prepare themselves for wide-ranging career opportunities such as: Meat Technologist, Hatchery Manager, Artificial Breeding Technician, Feed Sales and Serviceman, Meat Marketing Specialist, Breed Association Representative, Laboratory or Animal Technician, and Meat and Egg Inspector. Some choose to become Cooperative Extension Agents working in Public Service and some take education courses and teach in high schools. The individual curriculum developed depends on the interest of the student, but it would include both basic and applied courses.

A few graduates use their knowledge of Animal Science in positions of insurance sales, bank representative, zoo keeper, and wildlife biologist.

The Departments of Animal Science and Poultry Science combine their efforts to offer this range of programs for students desiring a career opportunity within the area of the Animal Sciences.

Four students listen to a professor's explanation of the composition of a cow's udder.

Applied Economics and Business Management



The program in Farm Business Management and Finance prepares students for careers as self-employed farm operators or farm managers, as well as for positions with farm-related businesses that provide farmers with supplies, services, equipment, or credit.

The many activities related to the food industry, agriculture, and natural resources constitute important and dynamic areas of our national economy. New techniques in producing and marketing farm output, shifting consumer preferences, environmental concerns, and altered relationships between agriculture and the rest of the economy continue to evolve at a rapid rate. These changes create economic problems which persons trained in applied economics and business management are equipped to help solve.

A producer is perplexed by a complicated array of technology. A food processor seeks guidance on consumer tastes and the effectiveness of advertising. A meat packer wishes to know the impact of altered prices on the movement of his inventories. A retailer must decide on personnel policy. A community weighs the costs and benefits of legislation regulating land use. Government officials must consider the effects of raising local property taxes. The applied economist is trained to contribute to the solutions of these problems and in the identification and achievement of opportunities in agriculture, business, government, community, and international affairs.

Curricula

Courses in Applied Economics and Business Management are offered by the Department of Agricultural Economics. A sound education in this area has a foundation in the sciences and humanities as well as in a core of courses in the area itself. The principles of economics and management are central to the Department's programs; however, students can tailor a course program to a variety of specific interests. Course offerings in this Department are supplemented with others in related areas at Cornell such as Economics, Rural Sociology, Government, Industrial and Labor Relations, Hotel Administration, Consumer Economics, Natural Resources, Mathematics, and Statistics. Students may select a sequence of courses in preparation for careers in farm business management and finance, business management, marketing, food distribution, resource economics, government and public policy, international agricultural development, and others. Many students use the undergraduate program to prepare for advanced training in agricultural economics, economics, business management, city and regional planning, and law.

Specialization in this area enables qualified students to enter a joint program with the Graduate School of Business and Public Administration leading to a master's degree at the end of the fifth academic year. Superior academic achievement also permits consideration of graduate programs leading to the M.S. or Ph.D. degrees with a major in Agricultural Economics or other areas of applied economics.

Career Opportunities

Recent career placements in representative specializations illustrate the wealth and diversity of employment opportunities afforded graduates of this program area.

Business Management and Marketing

—Advertising account executive
—Manager of garden center
—Sales representative for manufacturer
—Market analyst

Farm Business Management and Finance

—Farm operator
—Farm loan manager
—Cooperative extension agent
—Financial manager of farm cooperative

Food Industry Management

—Produce buyer, corporate food chain
—Supermarket manager
—Sales manager for food manufacturer
—Training director, food chain

Public Affairs Management

—Legislator or other policy maker
—Administrative intern
—Economic analyst, federal agency
—Budget analyst, state government

Resource Economics

—Legislative adviser
—Regional economist, governmental agency
—Economic analyst, pollution control equipment manufacturer
—Policy Analyst, water development program

Training in Marketing and Business Management and Food Industry Management leads to careers in management or to sales positions in the food industry with firms that process, market, distribute, or retail farm products.

Behavioral and Social Sciences

A student is given suggestions in a speech class.

Man is a social being with problems that arise from his attempts to interact with other human beings. The Behavioral and Social Sciences Program Area in the College focuses on learning about and improving relationships among people. More specifically, it is concerned with the study of processes by which knowledge, skills, and attitudes are utilized and transmitted from person to person and from group to group.

Curricula

Students may focus their studies on the communication process itself with the goal of becoming and helping others become more effective communicators. This goal can be accomplished by studying journalism, speech, broadcasting, advertising, and the role of mass media in society. These areas all stress the key role that effective communication plays in modern society. Communication is an integral part of the smallest human interaction as well as the worldwide struggles for political and economic advancement.

Students may also obtain knowledge of the social forces affecting America and, more particularly, rural America with the goal of understanding how groups, organizations, and institutions work. Opportunities are available to study the problems of minority groups, leadership, social change strategies, and social movements.

A third curriculum focus in the Behavioral and Social Sciences is education. One program emphasis leads to the study of educational practice and prepares the student for teaching. This program includes the study of methods and materials of teaching, off-campus practice teaching, and other courses important to the professional preparation of teachers. Students preparing to teach in a particular subject matter area take extensive course work in appropriate college departments and may, in fact, elect an adviser from another program area. Another program emphasis in education consists of study in areas such as the psychology of learning and teaching, current and past social issues in education, the purposes and values of education, and the nature of educational institutions.

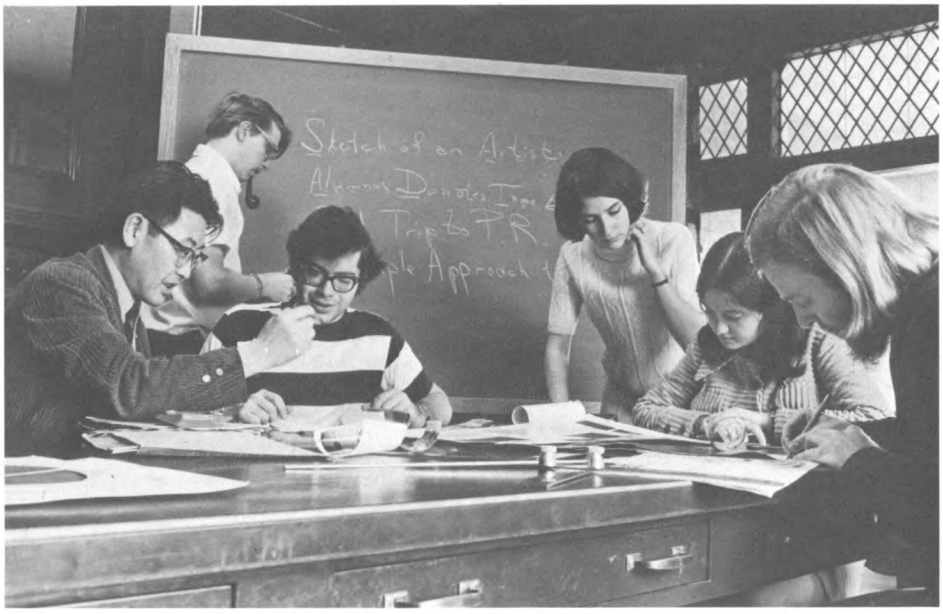
Career Opportunities

After concentrating in the Behavioral and Social Sciences, the student has many career opportunities. There are a number of careers for which the undergraduate program may serve as direct preparation although many careers require additional training beyond the bachelor's degree (e.g., graduate school or on-the-job training). Possible careers include teaching ornamental horticulture, agricultural mechanization, farm production and management, conservation or agricultural business*, Cooperative Extension (adult and youth), other youth group work (e.g., Boy Scouts, YMCA), nature center work, television and radio broadcasting, public relations, advertising, sales, science teaching, teaching outdoor education, college teaching, industrial training, editing, illustrating, writing, and Peace Corps or VISTA.

At present several specializations are available in communication, sociology, and education. Each specialization has its own goals, requirements, and career possibilities. However, they all share a concern for discovering and using knowledge about people for the improvement of the human condition.

Departments cooperating in this Program Area are: Communication Arts, Education, and Rural Sociology.

**New York State Certification Provided.*



Biological Sciences

Solutions to many of man's most critical problems and the key to his survival on this planet depend upon an understanding of himself and the world around him. Through studies in the basic biological sciences man hopes to gain the insight which will allow him to alleviate the suffering of mankind and maintain an existence with dignity, while preserving the environment for future generations.

Two colleges of the University—the College of Agriculture and Life Sciences and the College of Arts and Sciences—offer a broad biology program for undergraduates. Over 130 courses are available within the Division of Biological Sciences. They range from introductory biological sciences through systematics, ecology, physiology, anatomy, neurobiology, behavior, biochemistry, botany, cell biology, and genetics and development.

Curricula

Programs of study in the Division are designed to allow maximum flexibility for students in preparing for graduate school, medical and other professional schools, other advanced studies, and teaching. The concept of the major in biology is not solely as a preparation for professionalism. It is also recognized that a student needs to know some area of study in sufficient depth to acquire a measure of genuine scholarship. This would not be possible if a completely general education was followed. Biology is a particularly suitable major in this regard because it offers special insights into the natural world, and so many biological questions are coming to the fore to challenge every citizen. These include matters of health, pollution, environmental quality, genetics with respect to human propagation, agriculture, and mental and physical well-being.

Students in this area are introduced to a series of core courses to provide a scientific foundation. In addition, students are required to take courses in two other (breadth) areas of biology, and then concentrate study in a chosen area of biological specialization. The curriculum thus consists of three interwoven elements: foundation, breadth, and concentration.

FOUNDATION	AREAS OF BREADTH	AREAS OF CONCENTRATION
Chemistry	Neurobiology and Behavior	Animal Physiology and Anatomy
General Biology	Developmental Biology	Biochemistry
Genetics	Ecology and Evolution	Botany
Language	Microbiology	Ecology and Evolution
	Morphology	
Physics	Taxonomy	Neurobiology and Behavior
	Physiology	Genetics and Development

The curriculum maintains a high degree of flexibility, and independent study and research is encouraged. Students, who for good reason wish to undertake a course of study not covered by the published concentration areas, may petition the Division for permission to do so.

Seminars are offered in each area of concentration. For interested and qualified students, an opportunity to do individual research is available during the junior and senior years. For highly meritorious students, an honors program is offered.

Prior to the senior year, the student must have written approval of the Division of Biological Sciences for final admission to the major. Final admission requires satisfactory completion of: (1) one year of Introductory Biology–Biological Sciences 101, 102, 103, 104 or 109–110, or a score of 5 in the Advanced Placement Tests of the College Entrance Examination Board, or a score of 3 or 4 and completion of Biological Sciences 107; (2) a year of General Chemistry (preferably Chemistry 107–108 or 115–116); (3) a year of college Mathematics, including at least one semester of Calculus, Mathematics 111–112 or 105–106. Students who are unprepared to take these courses should prepare themselves by taking Orientation 110. Whenever possible, they should include the above three subjects in their freshman schedule and complete organic chemistry and genetics in the sophomore year. They are not encouraged to undertake a specialization in biological sciences unless their performance in the above courses gives evidence of a capacity to do satisfactory work at a more advanced level.

Environmental Studies

On-site investigations, such as this one on Cayuga Lake, are components of many Environmental Studies specializations.

The study of the environment and man's interaction with it is a vigorous and challenging area. Environmental Studies includes the natural processes in air, land, water, energy, and life, and their interactions with each other and with man. The area of Environmental Studies can be viewed as an activity that lies between the extremes of traditional basic science and technology and the organizations established by society for the application and use of science and technology. The strategy for developing reasonable solutions to environmental problems requires a strong base of scientific, ecological, and technical knowledge, the ability to understand the natural environment, and the ability to estimate the effect of man's interaction with the environment. Notable advances are being obtained at an accelerating rate. New tools and techniques, borrowed from all science and technology, are being applied to the solution of environmental problems.

Education in this area should cross disciplinary lines and can lead to:

An ecological awareness—concern for the total environment

An economic awareness—how costs relate to environmental problems

A political awareness—understanding how individual roles relate to collective responsibility

A problem analysis awareness—ability to define problems and to view the facts of the situation

An awareness that man is a part of, and not apart from, nature

There are many disciplines and courses in the College that can help prepare students for both general understanding and careers in various areas of environmental studies. Educational opportunities exist for students who have as yet undefined interests as well as those with well-defined specialized career goals.

Specializations

The specializations available to students in the Environmental Studies Area are:

Aquatic Science
Atmospheric Science
Entomology
Environmental Conservation
Environmental Technology
Fishery Science
Landscape Architecture
Outdoor Recreation
Soil Science
Wildlife Science

Students with well-defined interests may specialize in one of these areas upon entrance. Others may delay specialization to a later date.

Students have an opportunity to take part in wildlife research.

Career Opportunities

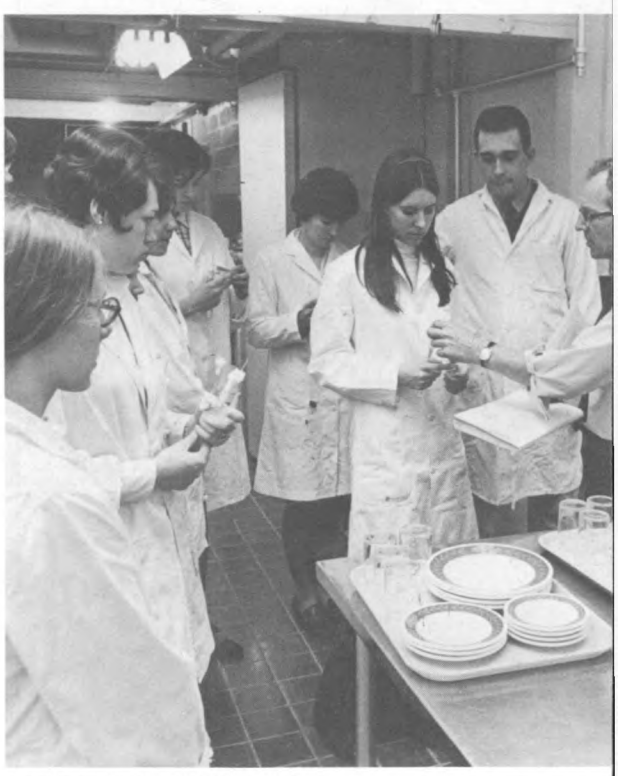
The number and complexity of environmental problems exceed the capability of available manpower to attack them effectively. Manpower needs related to the environmental area are not confined to scientists, engineers, technicians, and others who contribute to scientific and technical progress. As environmental studies advance, and as more financial resources are committed, there will be an increasing need for staff and administrators in local, state, and federal organizations. Success in a number of the above specialties may require study and experience beyond that obtained at the undergraduate level.

Curricula in the Environmental Studies Area help prepare students for many useful endeavors and can serve as a base for graduate work in numerous fields. Specifically, it serves the needs of three groups:

1. It offers opportunities of specialized programs for those students who wish to qualify for beginning positions with governmental agencies, private industry, and research organizations.
2. It provides a foundation for those students who decide to continue with graduate training in one of the specialties.
3. It prepares students to be citizens with special training to appreciate and understand their environment and man's impact on it.

Departments cooperating in the program area are: Agricultural Engineering, Agronomy, Entomology, Floriculture and Ornamental Horticulture, and Natural Resources.

Food Science



Students in Food Microbiology learn about microbial sanitation techniques.

The food industry, the world's oldest and largest industry, continues to expand to meet the nutritional needs of the increasing world population. The ability of the industry to meet these needs depends on the adequacy of the techniques used to produce, process, and distribute safe and nutritious food to the consumer. This, in turn, is dependent on the skill and knowledge of food industry personnel.

The food science program area is designed to provide students with some of the skills and knowledge necessary to ensure an adequate food supply. In the first phase of this program students take courses in biology, chemistry, physics, nutrition, and microbiology. This basic knowledge is supplemented by courses that deal with the application of science and technology to the processing, preservation, distribution, and utilization of foods.

Specializations

Students in the food science program may select from the following three specializations:

Food Science, General
Food Analysis
Food Technology and Management

The general Food Science curriculum is designed for those wishing to obtain a broad background in basic sciences, plus specialized training in food science. The Food Analysis curriculum provides training in basic analytical methods and in specialized techniques for determining the nutritive, microbiological, chemical, and physical properties of foods. The Food Technology and Management curriculum is intended for those specifically interested in the technological and management aspects of food processing. This curriculum includes introductory science courses, plus specialized training in processing, management, and economics.

A summary of the specific requirements beyond the College requirements for graduation are:

SUBJECT MATTER	FOOD SCIENCE (hours)	FOOD ANALYSIS (hours)	FOOD TECHNOLOGY AND MANAGEMENT (hours)
Food Analysis and Properties	12	17	8
Food Engineering and Processing	16 or 17	3 or 4	16 or 17
Microbiology	9	9	5
Organic and Analytical Chemistry	6	10	4
Nutrition	3	6	3
Biochemistry	0	4	0
Mathematics and Statistics	6	6	6
Computer Science	0	3	0
Physics	6	6	6
Economics (General) and Marketing	3	0	18

Career Opportunities

The flexibility of the Food Science Program allows students to prepare for a variety of positions in industry, government, or universities. Some of the positions commonly available to food scientists and technologists are:

Plant control specialists
Quality control specialists
New product development specialists
Processing equipment engineers
Marketing specialists
Food analysts
Food inspectors and regulatory control personnel
Research specialists and directors
University teachers
Food extension specialists

The latter three categories usually require graduate training, and opportunities for graduate study exist in a number of universities.

Departments cooperating in this Program Area are: Animal Science, Food Science, and Poultry Science.

A knowledge of food-processing equipment is essential for students in a food engineering course.

Plant Sciences

Forage plants in a greenhouse at the Guterman Bioclimatic Laboratory are examined by Gary W. Fick, assistant professor of agronomy (forage crops) and senior Crop Science major Ted Lyon.

Plants, the basic converters of solar energy, are the source of food and fiber for man and feed for animals. They also provide raw material for many industries, beautify the environment, and combat pollution. While the amount of land available for plant production is relatively constant, demands for plants and their products increase with population. Continual increases in efficiency in the production, processing, and marketing of plants are essential. The multiple disciplines in the plant sciences prepare students to participate in this necessary and challenging process.

A large number of courses ranging from basic botany to its applications in various plant sciences is offered by the College of Agriculture and Life Sciences. Curricula are provided for students who have tentative or nonspecific interests in plants as well as those with sharply defined, specialized career objectives.

Specializations and Career Opportunities

Entering students in the Plant Science area may specialize in:

General Plant Science
Plant Breeding
Plant Pathology
Plant Protection
Field Crops
Floriculture and
Ornamental Horticulture
Pomology
Vegetable Crops

Students with well-defined interests may specialize upon entrance. Others should enter in the curriculum of general plant science and may or may not specialize further at a later date.

These specializations have considerable flexibility; a number of options are available within each of them, varying according to aptitudes and career plans. Students who are likely to continue their studies in graduate schools are advised to emphasize courses such as chemistry, physics, mathematics, biology, plant physiology, and genetics, in addition to plant science courses. Opportunities after completing an advanced

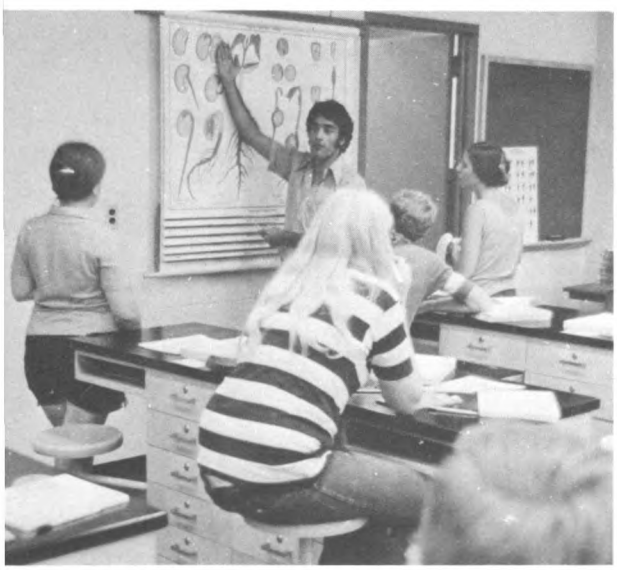
Greater knowledge of the fruiting and growth habits in sweet cherry and other fruit plants is the object of a firsthand inspection by Robert Pool, left, a graduate assistant, and Robert Brown, an undergraduate in Pomology.

degree are available in universities, government agencies, and private companies for careers such as research scientists, professors, agronomists, horticulturists, plant breeders, plant pathologists, plant physiologists, and plant geneticists.

For students who desire a technical job in some area of plant science after completing a bachelor's degree, the study program includes physical, biological, and social sciences, but more emphasis is placed on courses in one or more of the plant science specializations. Examples of career opportunities are: extension agent, high school teacher, research technician, technical salesman or service representative, florist, nursery landscaper, field man for processing company, pest control specialist, plant or seed inspector, and Peace Corps worker.

Students interested in production management after the bachelor's degree are given a wide choice of technical and applied courses in the several plant science specializations after completing basic college requirements in the physical, biological, and social sciences. Courses in business, economics, management, and animal science are appropriate depending on individual interests. Career opportunities include operation and management of farms, orchards, greenhouses and nurseries, retail sales and services, and buying, selling, and other types of management positions in firms that handle plants and plant-related products.

Departments cooperating in this Program Area are: Agronomy, Floriculture and Ornamental Horticulture, Plant Breeding and Biometry, Plant Pathology, Pomology, and Vegetable Crops.



Students in a laboratory section of Agronomy III, Introduction to Crop Science, hear an explanation of bean and pea germination by R. K. Muslik, Agronomy graduate student and a teaching assistant.

General and Special Programs

General Studies

Students interested in receiving a broad, general education in Agriculture and Life Sciences should select the General Studies Program. Students in this program have maximum flexibility to select courses in all program areas in order to obtain a fundamental knowledge in all phases of agriculture and the life sciences.

Students who are uncertain about their career objectives also may wish to select this program for a year or two before choosing a program area or specialization.

Some students completing a program in General Studies will be able to find employment. Most, however, will require advanced training by employers or in graduate or professional schools.

Employment opportunities are varied and interesting for students with aptitude and training in mathematics and statistics.

International Agriculture

Students interested in international agriculture may wish to select this specialization. Over thirty-five courses are available to acquaint students with agricultural development in various parts of the world.

Students selecting this area must also satisfy the requirements of a specialization in one of the other program areas. Career opportunities are available in several countries in agricultural education and research.

Microbiology

Microbiology is a program of study for those students interested in the basic nature of microorganisms and their importance in medicine, food, and agriculture. The specialization provides training for research or technical positions in microbiology, as well as preparation for graduate work in the theoretical and applied aspects of the science.

Specialization in Microbiology requires courses in related biological sciences, chemistry, physics, and mathematics, and is designed to fulfill the requirements for accreditation by the American Academy of Microbiology.

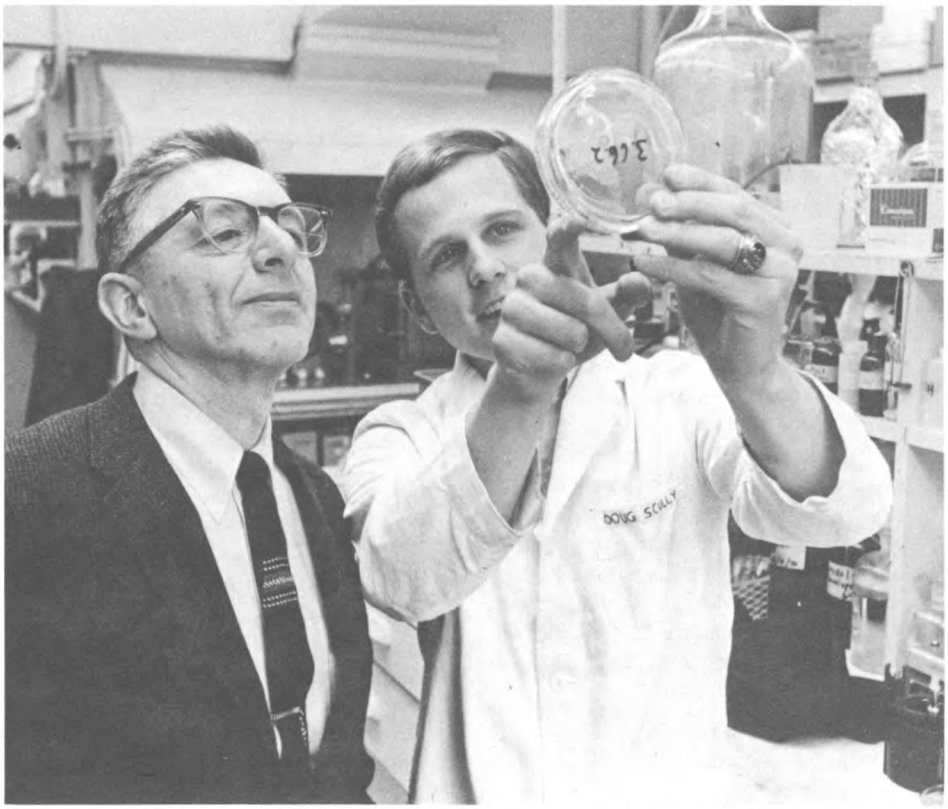
Statistics and Biometry

Students who have an aptitude in mathematics are encouraged to special-

ize in Statistics and Biometry. Statistics involves applications of mathematics and probability to collecting and interpreting measurements. The particular application to agricultural and life sciences is commonly called Biometry.

The specialization of Statistics and Biometry is particularly attractive because of its breadth and diversity. Courses are required in statistics, mathematics, and computing. In addition, the specialization leaves considerable freedom for the student to develop a concentration in one of the other specializations in the College. The present opportunities for employment of graduates from the specialization of Statistics and Biometry are excellent for both men and women.

Students with interests in international agriculture gain an understanding of the problems of other countries and consider how the application of agricultural knowledge can help in their solution.



The program in microbiology prepares students for research or technical positions, as well as for graduate study.

Intercollege Programs

Students in the College have an opportunity to enroll in the following intercollege programs:

1. *Bachelor of Science (with the College of Engineering)*

   The purpose of this program is to prepare engineers for work in a variety of agricultural and related industries. Students register in the College of Agriculture and Life Sciences for three years and in the College of Engineering in their fourth year. They receive their degree from the College of Engineering.

For more information:
see the Agricultural and Biological Engineering Program Area on p. 18.

2. *Master of Business or Public Administration.*

   In their fourth year, properly qualified students may double register in the College and in the Graduate School of Business and Public Administration. Through a careful selection of courses, they can qualify for the Bachelor of Science degree from the College at the end of their fourth year and for either the Master of Business Administration or Master of Public Administration at the end of their fifth year instead of the normal six years.

For more information:
see Applied Economics and Business Management Program Area on p. 22.

3. *Food Industry Management*

   The College offers a special program in Food Industry Management in cooperation with the Graduate School of Business and Public Administration and the National Association of Food Chains. Students may register in either college in a special nondegree program or in programs leading to bachelor's, master's, or Ph.D. degrees.

For more information:
see Applied Economics and Business Management Program Area on p. 22.

4. *Master of Nutritional Science*

   Through a careful selection of courses, properly qualified students may complete the requirements for both a Bachelor of Science from the College of Agriculture and Life Sciences and a Master of Nutritional Science from the Graduate School of Nutrition in five years instead of the normal six. Students interested in this program should consult their faculty adviser no later than the end of their freshman year.

5. *Doctor of Veterinary Medicine*

   Students who do their preveterinary work in the College of Agriculture and Life Sciences and are accepted by the Veterinary College are able to qualify for degrees from both colleges in about seven years. Students interested in this program should consult their faculty adviser.

Overseas Academic Programs

Several opportunities for study abroad are coordinated within the College and through other units of the State University of New York. These opportunities offer students a broadened educational program, a multicultural perspective, and possible new avenues of career development. Among the available study-abroad programs are three student exchange programs which have been carefully designed in cooperation with universities in Mexico, Argentina, and Sweden. A cooperative arrangement with the University of Reading has enabled the College to endorse from four to six students for a year of study under a tutor in the Faculty of Agriculture and Food.

Mexican Exchange Program

A College of Agriculture and Life Sciences student is competitively selected in his freshman year to go to the Instituto Tecnologico y de Estudios Superiores de Monterrey during his junior year. The sophomore year is used to attain proficiency in the Spanish language. Credit received in Mexico may be transferred towards graduation at Cornell. Scholarship assistance from Monterrey and Cornell will provide up to two-thirds of the approximately $3,000 total cost of the year. Each year, a student from Monterrey attends Cornell University under similar arrangements.

Argentine Exchange Program

Procedures for involvement in the Argentine Program are the same as those for the Mexican Program. The total expense to the student for a year of study at the University of Buenos Aires, Faculty of Agronomy and Veterinary, is the cost of round-trip air transportation. The College also hosts a student from Argentina under this exchange program.

Swedish Exchange Program

The student selected to participate in the Swedish Exchange Program applies for it in his sophomore year and spends his junior year at the Agricultural College of Sweden at Uppsala. All essential expenses and a living allowance are provided by a student group in Sweden except for round-trip air transportation which must be paid by the exchange students. Credit received in Sweden may be transferred toward graduation at Cornell. A student from the Agricultural College in Uppsala spends a year at Cornell University with support from the College and student groups.

Year Abroad at Reading

The College has an arrangement with the University of Reading, Faculty of Agriculture and Food, whereby a few students are recommended to the Faculty for admission for one year as occasional students. Credit may be transferred to Cornell. Students usually go in their junior year although it is possible to participate as a sophomore. All expenses are paid by the student.

Students interested in these or other year-abroad programs are encouraged to seek additional information from the Office of International Agriculture, 17 Roberts Hall. Applications are submitted to that office for presentation to the Exchange Committee which makes the final awards.

The Faculty

It is well known that a college is no better than its faculty. The College of Agriculture and Life Sciences has one of the most distinguished faculties of its kind in the world. Approximately 92 percent of the 500-plus faculty members have earned doctorate degrees from some of the most prestigious universities in the world.

Every year faculty receive numerous awards and recognition for their outstanding research, extension, and teaching. The members of Ho-Nun-De-Kah (a senior honorary society) recognize outstanding teaching and each year present a Professor of Merit Award to a professor who has done an exceptionally outstanding job.

Almost all of the faculty who teach undergraduate courses also have responsibilities in research or extension. About 40 percent of the faculty have spent time working in other countries, primarily in the area of food production and marketing.

The Student Body

Cornell University Libraries contain more than four million volumes, making the collection one of the top ten academic collections in the United States.

One of the greatest assets of the College of Agriculture and Life Sciences is the quality and diversity of its students and alumni. The College has had a long and proud history and many leaders in business, government, education, and agriculture received their formal education here. One of the College's most important objectives, and one it strives very hard to achieve, is to maintain and improve the quality of its educational programs so future alumni can attribute part of their success to their years at Cornell.

Students admitted to the College are a select group. About 95 percent of the entering freshmen are in the upper two-fifths of their high school class. Their average high school grade is 89 and their average SAT scores are 600 verbal and 650 mathematics.

The student body of 2,000 men and 800 women has a ratio of 40 percent underclass and 60 percent upperclass. This ratio is maintained by accepting between 350 and 400 transfer students each year, most of whom are graduates of two-year colleges.

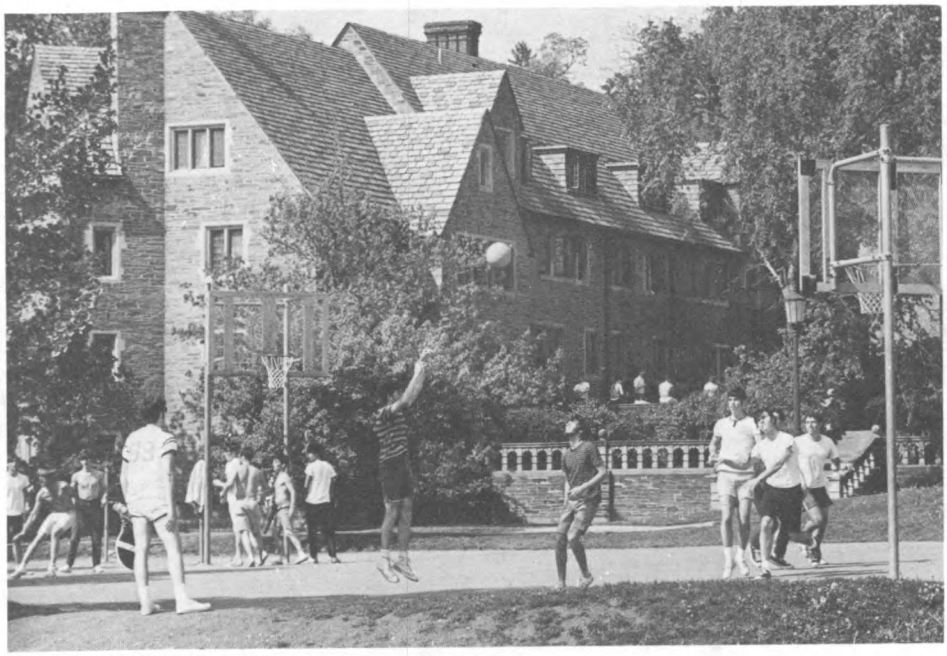
About 80 percent of the student body is from New York State, and, in most years, the College has students from every county. About 13 percent of the students come from other states and 7 percent come from other countries.

Facilities

The College uses about 14,200 acres of land for research and instruction. Most of the facilities of interest to students are located on the Ithaca campus. Included are: eighteen major buildings, thirty greenhouses, a livestock pavilion, and numerous special laboratories and barns.

Facilities located throughout New York State include: the New York State Agricultural Experiment Station at Geneva; the Animal Science Teaching and Research Center at Harford; the Long Island Vegetable Research Farm at Riverhead; the Ornamentals Research Laboratory and Nematode Research Laboratory at Farmingdale; the Cornell-Uihlein Foundation Seed Potato Farm near Lake Placid; a Cornell-USDA Nematode Research Farm at Prattsburgh; the Cohn Fruit Farm at Sodus; an Agronomy Farm at Aurora; an Orchard on the East Shore of Lake Cayuga; a Duck Research Laboratory on Long Island; the Miner Institute near Chazy; the Vegetable Improvement Association in Orange County; Hudson Valley Laboratory at Highland; a Vineyard Laboratory at Fredonia; Shackleton's Point-Cornell Biological Field Station at Bridgeport; Brandon Laboratory at Paul Smith's; a Biological Field Station on Oneida Lake; and the Shoals Marine Laboratory on Appledore Island off the New Hampshire coast.

In addition, the College has field plots in a number of locations and cooperates on research programs with the State University Agricultural and Technical Colleges at Farmingdale and Canton.



Sports activities can be informal as well as formal, as this picture in a student residence area shows.

Admissions

Policy

It is the policy of Cornell University actively to support equality of educational opportunity. No student shall be denied admission to the University or be discriminated against otherwise because of race, color, creed, religion, national origin, or sex. As the only four-year College of Agriculture and Life Sciences in the State, it is a policy to take at least 80 percent of its undergraduate students from New York State.

Criteria for Admission

The Admission Committee selects those candidates whom it believes will benefit most, as well as those who will contribute the most to the objectives of the College and its programs. The Committee considers all of the information it receives about each candidate. Important factors include: educational goal, scores on standardized tests, e.g., SAT and ACT, grades in high school, scores on Regents Examinations, rank in class, courses taken in high school or college, recommendations of guidance counselors, alumni and others, extracurricular activities, evidence of leadership ability, work experience, and unusual abilities or competence.

The Committee admits a limited number of students each year who do not meet the normal academic requirements, but who for various reasons it believes can handle the work satisfac-

Characteristics of a Typical Freshman Class

HIGH SCHOOL GRADES	PERCENT OF CLASS
95–100	6
90–94	39
85–89	38
80–84	16
75–79	1

VERBAL SAT SCORES	PERCENT OF CLASS
750–800	2
700–749	11
650–699	20
600–649	23
550–599	21
500–549	12
450–499	8
Below 450	3

REGENTS GRADES	PERCENT OF CLASS
95–100	8
90–94	33
85–89	36
80–84	19
75–79	4

MATHEMATICS SAT SCORES	PERCENT OF CLASS
750–800	8
700–749	22
650–699	26
600–649	25
550–599	13
500–549	5
450–499	1
Below 450	0

torily and could benefit from the programs offered by the College.

Competition for Admission

The College follows a controlled enrollment policy that is incorporated into the long range plans of both Cornell University and the State University of New York. Undergraduate enrollment has been increased gradually from 2,063 in 1966 to 2,800 in 1973. Enrollment is expected to be maintained at about 3,000 after 1980.

Competition for admission is extremely keen as the number of applications for admission to the freshman class is about five times as great as the number of students that can be accommodated.

Early Decision Plan

Highly qualified high school seniors who designate the College as their first choice may be interested in the College's Early Decision Plan. Applications are due by November 1 and students are notified by December 15.

For more information, request the folder *Cornell University Early Decision Plan* on the form at the back of this *Announcement.*

Entrance Requirements

For admission to the Bachelor of Science degree program in the College, an applicant must: (1) be at least sixteen years of age; (2) have completed a secondary-school curriculum with a minimum of sixteen units including four units of English, three units of mathematics, and three units of science; (3) present scores of the Scholastic Aptitude Test of the College Entrance Examination Board (SAT) or the results of the American College Testing Program (ACT). New York State residents should also submit scores from Regents examinations, and all applicants who submit SAT results are urged to take College Board Achievement Tests in two of the following: English composition, mathematics, or science.

In addition to the above requirements, it is strongly recommended that high school students carry enough courses to offer eighteen entrance units and that these include biology, chemistry, and physics. Students who wish to major in one of the sciences or to become research workers should offer adequate training in foreign languages.

Advanced Placement—Freshmen

Prospective freshmen who have taken college-level courses in secondary school may qualify for advanced placement and advanced credit in the following areas of study: biology, chemistry, English, Latin, literature, mathematics,

Students move between classes on the Ag Quad.

modern foreign languages, music, and physics.

Those who wish to be considered for advanced placement or credit should take the appropriate advanced placement examination(s) of the College Entrance Examination Board in May. For more information, request the folder *Advanced Placement for Freshmen* on the form at the back of this *Announcement.*

Advanced Placement—Transfers

Students who transfer from other colleges are eligible to receive up to 15 credits for each semester of work completed at another college or university. To obtain the Bachelor of Science degree, however, transfer students must meet the degree requirements of the College with the exception of the residence requirement. In addition, they are expected to meet the requirements or their equivalent established for the Program Area to which they are admitted. For more information, request the *Guide for Transfer Applicants* on the form at the back of this *Announcement.*

Early Admission

Students who are one or two units short of completing a secondary school program in three years will be considered for admission to the College on an individual basis. For more information, contact the Admissions Office, 195 Roberts Hall.

Special Opportunity Programs

Cornell University administers a variety of special opportunity programs designed to provide financial assistance and other forms of assistance to low-income, minority students and others meeting program guidelines. Special programs exist to aid in increasing representation of students from minority groups present in New York State who historically have been underrepresented in higher education. For details, prospective students should consult the *Guide for Candidates* which accompanies each undergraduate application or will be sent upon request by the Office of Admissions, 247 Day Hall, Cornell University.

Special Students

A limited number of places are available for nondegree candidates who wish instruction in selected courses in preparation for employment. Applicants should submit a resumé of their experiences and a plan outlining the specific courses they desire. For more information contact the Admissions Office, 195 Roberts Hall.

*Expenses**

The cost of attending the College of Agriculture and Life Sciences varies considerably among individuals. The figures below can be used as a guide. The approximate cost for most residents of New York State is $3,700 per academic year;† for nonresidents, a typical cost is $4,300 per year.

ESTIMATED EXPENSES PER ACADEMIC YEAR

Registration (first year only)	$50.00
*Room**	750.00
*Board**	750.00
Books and Supplies	150.00
Personal	500.00
Tuition‡	
New York resident	1,500.00
Nonresident	2,100.00

*See the *Announcement of General Information* for additional details.

†Write to the Director of Resident Instruction, 192 Roberts Hall, if doubtful about right to qualify as a New York State resident.

‡For academic year 1974–75. The amount, time, and manner of payment of tuition or other charges may be changed at any time without notice.

Scholarships and Financial Aid

Students should not hesitate to apply for admission because they lack financial resources. Acceptance is not affected by the amount of financial aid needed.

Through the generosity of its alumni and friends, the College is able to award over $110,000 each year in scholarships to its students. Students in the College are also eligible for University scholarships, loans, and part-time jobs.

Students needing financial aid should complete and return the application form included in the application packet they receive. Awards are based on financial need. Most awards include a combination of scholarships, loans, and part-time jobs.

For more information, see the Announcement of General Information *or write to: Director of Scholarships and Financial Aid, 205 Day Hall.*

Roberts Hall is the administration building for the College of Agriculture and Life Sciences.

Degree Requirements

Candidates for the degree of Bachelor of Science normally must be in residence for eight terms and earn 120 credits with a cumulative grade average of C− (1.7) or above; and a grade average of C− or above in the last term.

Distribution requirements established by the faculty are:

45 credits in physical sciences, biological sciences and social sciences and humanities including: a minimum of 12 hours in physical sciences with 6 hours in either chemistry or physics; a minimum of 12 hours in biological sciences with 6 hours in introductory biology, botany or zoology; a minimum of 15 hours in at least two subject areas in social sciences and humanities, including 6 hours of freshman humanities.

55 credits in the Statutory Colleges of which at least 45 must be taken in the College of Agriculture and Life Sciences.

20 credits from any school or college at Cornell.

4 semesters of physical education.

A dormitory student heads for class.

Recognition of Scholarship

Bachelor of Science With Distinction

The degree of Bachelor of Science With Distinction will be conferred upon those students who, in addition to having completed all of the requirements for the Bachelor of Science degree, have done all of their undergraduate work at Cornell and have cumulative averages of B+ (3.3 quality points) or above; and upon those transfer students who have been in residence for at least two years and have cumulative averages of A− (3.5 quality points) or above at Cornell.

Bachelor of Science With Honors

Students who have a cumulative grade point average of 3.0 after having completed 55 semester credit hours of which at least 30 hours have been at Cornell are eligible to apply to the Honors Program. A major part of the Honors Program involves independent research under the direction of a faculty member. Students who are interested in this program should talk to their faculty adviser early in the junior year.

Bachelor of Science With Distinction and Honors

Students who meet the requirements of both programs above will be graduated with Distinction and Honors.

Dean's List

Excellence in scholarship is recognized twice a year by publishing as a Dean's List the names of those students who have completed at least twelve hours of course work for letter grades, who are in good standing, and whose semester averages in academic courses are B+ (3.3 quality points) or above.

Index

List of Announcements

Following is a list of *Announcements* published by Cornell University to provide information on programs, faculty, facilities, curricula, and courses of the various academic units.

Agriculture and Life Sciences at Cornell
New York State College of Agriculture and Life Sciences: Courses
College of Architecture, Art, and Planning
College of Arts and Sciences
Department of Asian Studies
Graduate School of Business and Public Administration
Field of Education (Graduate)
College of Engineering
Engineering at Cornell
Graduate Study in Engineering and Applied Sciences
General Information*
Graduate School
Graduate School: Course Descriptions
School of Hotel Administration
New York State College of Human Ecology
New York State School of Industrial and Labor Relations
Law School
Medical College (New York City)
Graduate School of Medical Sciences (New York City)
Cornell University—New York Hospital School of Nursing (New York City)
Graduate School of Nutrition
Officer Education (ROTC)
Summer Session
New York State Veterinary College

*The *Announcement of General Information* is designed to give prospective students pertinent information about all aspects and academic units of the University.

Requests for the publications listed above should be addressed to

Cornell University Announcements
Edmund Ezra Day Hall
Ithaca, New York 14850.

(The writer should include a zip code.)

For more information:

Print your name and address.
Check the items you want.
Mail the form to:

Admissions Office
195 Roberts Hall
Cornell University
Ithaca, New York 14850

- ☐ Applications for Admission and Financial Aid
- ☐ Agricultural and Biological Engineering
- ☐ Animal Sciences
- ☐ Applied Economics and Business Management
- ☐ Behavioral and Social Sciences
- ☐ Biological Sciences
- ☐ Environmental Studies
- ☐ Food Science
- ☐ Plant Sciences
- ☐ General and Special Programs
- ☐ College of Agriculture and Life Sciences: Courses
- ☐ Cornell University Early Decision Plan
- ☐ Advanced Placement for Freshmen
- ☐ Guide for Transfer Applicants

NAME _____

STREET _____

CITY _____ STATE _____ ZIP _____